

**COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Tidewater Regional Office**

STATEMENT OF LEGAL AND FACTUAL BASIS

Anheuser-Busch, Inc., Williamsburg Brewery
Williamsburg, Virginia
Permit No. TRO-60152

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Anheuser-Busch, Inc., has applied for a Title V Operating Permit for its Williamsburg Brewery facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact:_____

Date:

Air Permit Manager:_____

Date:

Deputy Regional Director:_____Date:

FACILITY INFORMATION

Permittee

Anheuser-Busch Companies, Inc.
One Busch Place
St. Louis, Missouri 63118

Facility

Williamsburg Brewery
7801 Pocahontas Trail
Williamsburg, Virginia 23185

Responsible Official

Brian J. McNelis
Plant Manager

Facility Contact

Marisa M. Botta
Environmental, Health & Safety Manager
(757) 253-2135

County-Plant Identification Number: 51-095-00010
Registration Number: 60152

SOURCE DESCRIPTION

NAICS Code 312120 – Manufacturing of malt beverages and related byproducts including beer-condensed solids, dried grain, and distilled alcohol.

Grain Unloading and Transfer Operations - Grain is received by truck or railcar and transferred pneumatically to filter receivers, through hoppers to grain storage bins. On demand, grain is transferred to a second set of filter receivers and hoppers for cleaning, milling, and weighing. Filter receivers are also used to capture dust collected in baghouses during transfer operations.

Grain Drying and Dried Grain Handling - Spent grain recovered from brewing operations is de-watered by a centrifuge and dried in one of four grain dryers, then cooled in filter receivers and stored in bins for transfer to truck and railcar for offsite use.

Alcohol Distillation Process - The distillation process recovers alcohol from alcohol-containing brewery waste streams. Distilled alcohol product is recovered in the overhead stream from distillation columns. Distillation bottoms are sent to the evaporator system for further processing where beer-condensed solids are recovered.

Defill Operations: Bottle and Can Crushing - Off-specification bottles and cans are crushed and shredded to recover waste beer, aluminum, and glass. The defill process is fed by two waste streams: 1) process waste consisting of containers culled from the production process because of product quality requirements; and 2) case beer from offsite production, also with quality concerns. Process stream contains empty containers rejected prior to filling as well as those culled during filling and pasteurization which may be partially or completely filled. Cases for defill from offsite generally have bottles or cans full of beer.

Diatomaceous Earth Handling Operations - Diatomaceous earth (D.E.) is received in bulk by railcar and transferred pneumatically to storage. D.E. is then transferred for weighing and mixing with water to create a slurry for use as filter media in finishing operations.

Fermentation and Aging Processes - Strained and cooled beer wort is mixed with cultured yeast and allowed to ferment for several days, converting the wort to beer. The beer is then aged for several weeks in the presence of wood chips. The wood chips provide surface area to facilitate the aging process. Yeast is recovered and reused several times. Spent yeast is sent to distillation for alcohol recovery. The fermentation process generates CO₂ and ethanol; the CO₂ is recovered, purified and reused in downstream processes. The aged beer is then transferred to the finishing processes.

Finishing Process - The finishing process prepares aged beer for packaging. Finishing steps include removal of solid impurities by centrifuge, cooling and addition of silica gel to bind with unwanted proteins (chill proofing); settling and removal of formed solids (Schoene sludge); addition of water and CO₂ to meet product specifications; and filtering of the aged beer stream using diatomaceous earth (D.E.) as the filter media to remove any remaining undesirable constituents. Finished beer is then stored in the Filter Cellar Tanks for transfer to packaging. All tanks are maintained under CO₂ pressure to limit contact with air and to maintain desired carbonation.

Packaging Operations - Finished beer is packaged in cans, bottles, and kegs for distribution in commerce. Empty bottles are filled and capped by bottle fillers and then pasteurized using heated water. Coded bottle labels are then glued to each bottle. Bottles are then packed in cartons and cases. Similarly, cans are filled, closed with a lid, coded by printing a unique number on each can, and pasteurized prior to packing in cartons. Clean kegs from keg washing are filled with beer and coded with a printed label prior to storage under refrigeration; no pasteurization is performed on keg beer. Waste beer from filling operations is collected in the waste beer sump for transfer to alcohol distillation. Bottles and cans rejected because of quality requirements are sent to the defill operation. Returnable bottles and kegs are washed prior to sending to the filling lines.

The facility is a Title V major source of VOC, SO₂, and NO_x. This source is located in an attainment area for all pollutants, and is a PSD major source. The facility was previously permitted under Minor NSR Permits dated November 28, 1977, and April 7, 1988, and under a PSD Permit issued on April 2, 1984.

COMPLIANCE STATUS

A full compliance evaluation of this facility, including a site visit, has been conducted. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or federal applicable requirements at this time.

The last inspection conducted on the facility by the Virginia Department of Environmental Quality, dated August 23, 2005, indicated the facility is in compliance with the registration requirements and the regulations.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled
01	01	Natural gas/#6 oil-fired boiler, Babcock & Wilcox Type FM Burner No. CDC-28T	100 mmBTU/hr	-	-	-
02	02	Natural gas/#6 oil-fired boiler, Babcock & Wilcox Type FM Burner No. CDC-28T	100 mmBTU/hr	-	-	-
03	03	Natural gas/#6 oil-fired boiler, Babcock & Wilcox Type FM Burner No. CDC-28T	100 mmBTU/hr	-	-	-
04	04	Natural gas/#6 oil-fired boiler, Babcock & Wilcox Type FM Burner No. CDC-28T	98 mmBTU/hr	-	-	-
05	05	Natural gas/#6 oil-fired boiler, Babcock & Wilcox Type FM Burner No. CDC-28T	98 mmBTU/hr	-	-	-
41	41	Natural gas/#6 oil-fired dryer, Heil SD 105-32 Industrial Dryer, Peabody M-15 Dual Fuel Burner	34 mmBTU/hr and 13.6 tons of grain per hour	Mechanical scrubber, Schneible, Size 120, Model F-31B	41	PM10
42	42	Natural gas/#6 oil-fired dryer, Heil SD 105-32 Industrial Dryer, Peabody M-15 Dual Fuel Burner	34 mmBTU/hr and 13.6 tons of grain per hour	Mechanical scrubber, Schneible, Size 120, Model F-31B	42	PM10

43	43	Natural gas/#6 oil-fired dryer, Heil SD 125-42 Industrial Dryer, Peabody M-18 Dual Fuel Burner	40 mmBTU/hr and 24.7 tons of grain per hour	Mechanical scrubber, Ducon, Size 132, Model II	43	PM10
44	44	Natural gas/#6 oil-fired dryer, Heil SD 125-42 Industrial Dryer, Peabody M-18 Dual Fuel Burner	40 mmBTU/hr and 24.7 tons of grain per hour	Mechanical scrubber, Ducon, Size 132, Model II	44	PM10
21	21	A-Side Grain Unloading System consisting of pneumatic conveyor, filter receiver, hopper, and storage silos	35.0 tons of grain per hour	Baghouse, Mikro Pulsaire 25-6-220	21	PM10
22	22	Grain Transfer System for A-Side Milling and Weighing Operations consisting of pneumatic conveyor, filter receiver, hoppers, grain mills, and day storage bins	12.0 tons of grain per hour	Baghouse, Mikro Pulsaire 16-6-220	22	PM10
23	23	Dust Collection Bin for A-Side Grain Handling and Milling and Weighing Operations consisting of pneumatic conveyor, filter receiver	0.05 tons of grain per hour	Baghouse, Mikro Pulsaire 80S-8-20	23	PM10
25	25	B-Side Grain Unloading System consisting of pneumatic conveyor, filter receiver, hopper, and storage silos	60.0 tons of grain per hour	Baghouse, Buhler Miag ASFA 44/8, Type B-255	25	PM10
26	26	Grain Transfer System A for B-Side Milling and Weighing Operations consisting of pneumatic conveyor, filter receiver, hoppers, grain mills, and day storage bins	10.0 tons of grain per hour	Baghouse, Buhler Miag ASFA 18/4, Type B-225	26	PM10
27	27	Grain Transfer System B for B-Side Milling and Weighing Operations consisting of pneumatic conveyor, filter receiver, hoppers, and grain mills	10.0 tons of grain per hour	Baghouse, Buhler Miag ASFA 18/4, Type B-225	27	PM10

28	28	Dust Collection Bin for B-Side Grain Handling Operations consisting of pneumatic conveyor and filter receiver	0.02 tons of grain per hour	Baghouse, Buhler Miag ASFA 44/8, Type B-255	28	PM10
29	29	Dust Collection Bin for B-Side Milling and Weighing Operations consisting of pneumatic conveyor and filter receiver	0.05 tons of grain per hour	Baghouse, Buhler Miag PRF 100/8	29	PM10
47	47	Dried Grain Cooling Collector No. 1 - receiving bin for cooling dried grains	3.5 tons of dried spent grain	Baghouse, Buhler Miag ASFA 64/10, Type B-25	47	PM10
48	48	Dried Grain Cooling Collector No. 2 - receiving bin for cooling dried grains	8.8 tons of dried spent grain	Baghouse, Buhler Miag PFR 140/10	48	PM10
49	49	Dried Grain Storage Bin No. 1	15.0 tons of dried spent grains	Baghouse, Mikro Pulsaire Bin 8	49	PM10
50	50	Dried Grain Loadout consisting of a conveyor for truck and rail loading	20.0 tons of dried spent grain per hour	Baghouse, Mikro Pulsaire 37-8-100	50	PM10
52	52	Dried Grains Cooling Collector No. 3 - receiving bin for cooling dried grain	7.5 tons of dried spent grains	Baghouse, Buhler Miag ASFA 64/10, Type B-25	52	PM10
53	53	Dried Grains Cooling Collector No. 4 - receiving bin for cooling dried grain	6.0 tons of dried spent grains	Baghouse, Buhler Miag ASFA 64/10, Type B-25	53	PM10
55	55	Dried Grain Storage Bin No. 2	15.0 tons of dried spent grains	Baghouse, Buhler Miag ASFA 24/10, Type D	55	PM10
61	61	Alcohol Distillation Unit with integrated stripping and rectifying columns	400 gallons per hour of distilled alcohol	-	-	-

68	68	Bottle and Can Crushing for Process Operations consisting of can/bottle shredders/crushers	3,200 barrels of waste beer per hour	-	-	-
71	71	Railcar Unloading to Diatomaceous Earth Silo No. 1 consisting of pneumatic conveyor and storage bin	10.0 tons of diatomaceous earth per hour	Baghouse, DCE Model DLMV 14/7F3	71	PM10
72	72	Railcar Unloading to Diatomaceous Earth Silo No. 2 consisting of pneumatic conveyor and storage bin	10.0 tons of diatomaceous earth per hour	Baghouse, DCE Model DLMV 14/7F3	72	PM10
73	73	Diatomaceous Earth Transfer for Weighing and Slurry-making Process consisting of pneumatic transfer, filter receiver, weighing hopper, feeder, slurry tank, and mixer	5.0 tons of diatomaceous earth per hour	Baghouse, DCE Model DLMV 15/15F3	73	PM10
81	81	Ammonia Refrigeration System	1,229.0 tons of refrigeration capacity	-	-	-
111B	111B	Yeast Production and Processing consisting of various yeast brinks	3,200 barrels of fermentation yeast	-	-	-
111C	111C	Alpha Fermentation Process consisting of various Alpha fermentation tanks	3.2 million barrels of aged beer	-	-	-
114A	114	Aging Process consisting of various chip aging tanks	3,200 barrels of aged beer	-	-	-
115	115	Wood Chip Washers	11 million barrels per year	-	-	-
131C	131C	Finishing Process consisting of Schoene processing and storage tanks	3,200 barrels of finished beer	-	-	-
131D	131D	Finishing Process consisting of filter cellar storage tanks	3,200 barrels of finished beer	-	-	-

141A	141A/ B	Beer Packaging consisting of bottle filling lines	1,500 barrels of packaged bottle beer	-	-	-
141B	141A/ B	Beer Packaging consisting of can filling lines	3,100 barrels of packaged can beer	-	-	-
151	-	Freon Refrigeration System consisting of various refrigeration units	1,222.0 tons of refrigeration capacity	-	-	-

*The Size/Rated capacity and PCD efficiency is provided for informational purposes only, and is not an applicable requirement.

EMISSIONS INVENTORY

A copy of the 2004 annual emission update is attached. Emissions are summarized in the following tables.

2004 Actual Emissions Summary

	2004 Criteria Pollutant Emission in Tons/Year				
Emission Unit	VOC	CO	SO ₂	PM ₁₀	NO _x
Boilers	2.08	35.58	838.21	57.77	304.20
Dryers	0.0	0.0	0.0	0.0	0.0
Grain Handling	0.0	0.0	0.0	0.04	0.0
VOC Sources	101.08	0.0	0.0	1.94	0.0
VOC Sources	59.95	0.0	0.0	0.0	0.0
Total	163.10	35.58	838.21	59.74	304.20

2004 Facility Hazardous Air Pollutant Emissions

Pollutant	2004 Hazardous Air Pollutant Emission in Tons/Yr
None	n/a

EMISSION UNIT APPLICABLE REQUIREMENTS – Facility Wide

Limitations

The following limitations in the Title V permit are requirements from the Minor NSR Permit issued on November 28, 1977:

Condition 1 limiting the sulfur content of No. 6 fuel oil fired in the boilers to 2.4% by weight.
Condition 19 requiring periodic visible emissions evaluations on the fuel burning equipment.
Condition 21 requiring particulate emissions from Unit Ref. Nos. 21-23, 25-29, 47-50, 52, 53, and 55 to be controlled by baghouses.
Condition 37 requiring periodic visible emissions evaluations on the baghouses.

The following limitations in the Title V permit are requirements from the Minor NSR Permit issued on April 7, 1988:

Condition 40 limiting the yearly throughput of bulk diatomaceous earth to 7,200 tons per year calculated monthly as the sum of each consecutive 12-month period.
Condition 46 requiring training certification for all air pollution control equipment operators.
Condition 47 requiring the establishment of written operating procedures for all air pollution control equipment.

The following limitations in the Title V permit are requirements from the PSD Permit issued on April 2, 1984:

Condition 2 limiting the operation of the boilers to no more than 4 of the 5 boilers at any given time.
Condition 12 requiring the boilers to be operated in accordance with established maintenance and operations procedures.
Condition 14 requiring the scrubbers to be equipped with a scrubbing liquid level control that measures both high and low liquid levels within the scrubber.
Condition 19 requiring periodic visible emissions evaluations on the boilers.

The following Virginia Administrative Codes that have specific emission requirements have been determined to be applicable:

9 VAC 5 Chapter 40	Existing Stationary Source
9 VAC 5 Chapter 40	Article 1: Visible Emissions and Fugitive Dust/Emissions
9 VAC 5 Chapter 40	Article 4: Emission Standards for General Process Operations
9 VAC 5 Chapter 40	Article 8: Emission Standards for Fuel Burning Equipment
9 VAC 5 Chapter 50	New and Modified Stationary Sources
9 VAC 5 Chapter 50	Article 1: Visible Emissions and Fugitive Dust/Emissions
9 VAC 5 Chapter 80	Part I: Permits for New and Modified Sources
9 VAC 5 Chapter 80	Article 1: Federal Operating Permits for Stationary Sources

9 VAC 5 Chapter 80	Article 2: Permit Program Fees for Stationary Sources
9 VAC 5 Chapter 80	Article 4: Insignificant Activities
9 VAC 5 Chapter 80	Article 8: Permits for Major Stationary Sources and Major Modifications Locating in Prevention of Significant Deterioration Areas

40 CFR Part 68 - Chemical Accident Prevention Provisions. This standard applies to Unit No. 81 (Ammonia Refrigeration System).

40 CFR Part 82 - Protection of Stratospheric Ozone - Subpart F - Recycling and Emissions Reduction. This standard applies to Unit Ref. No. 151 (Freon Refrigeration System)

9 VAC 5 Chapter 170	General Administration
9 VAC 5 Chapter 80	Article 2: Permit Program Fees for Stationary Sources

Monitoring

All combustion and process sources have been given an opacity requirement with a corresponding monitoring requirement as specified in Specific Conditions 19, 37, and 52 of the Title V permit. The source is required to make monthly periodic visual evaluations of opacity for all of the combustion and process sources during operation of each emissions unit. The previous permit required weekly visible emissions monitoring. However, the source has indicated in the application that the facility has not experienced any deviations from established opacity limitations in the previous five year period and has requested to evaluate visible emissions monthly instead of weekly. The monthly periodic visual evaluations shall be logged in an operations log to be maintained on-site. The source shall note if any visible emissions are present. If visible emissions are observed, the permittee shall also note the following in the operations log:

- the color of the emissions,
- whether the emissions are representative of normal operation,
- if the emissions are not representative of normal operations, the cause of the abnormal emissions,
- the duration of any visible emissions incident, and
- any corrective actions taken to eliminate visible emissions.

"Normal operation" in this case is generally a zero visible emissions situation because the brewery has regularly maintained, state-of-the-art control systems such as fabric filters on the grain and diatomaceous earth handling systems, and uses natural gas as the primary boiler and dryer fuel. Some visible emissions may be considered normal operation during times of residual oil combustion in the boilers and dryers.

The wet scrubber used to collect particulate emissions from dryers 41, 42, 43, and 44 shall be monitored by the use of a liquid level device as noted in Specific Condition 14 of the Title V permit. The liquid level device is designed to trigger an alarm at both high and low liquid levels. The liquid level device ensures that enough reject liquor is maintained in the scrubber to ensure proper particulate matter removal. To ensure proper operation and maintenance of the scrubbers, the following monthly inspection and preventative maintenance shall be performed on the equipment:

- inspect and clean the screen at the collector effluent outlet,
- inspect the separator at the top of the collector,

- inspect the blowers,
- inspect the liquid flow device and liquid level indicator,
- inspect the pumps and motors to include bearings, and
- inspect instrumentation associated with the scrubber.

All preventative maintenance records will be maintained on-site to ensure that the operation of the scrubber remains in compliance with the conditions of the Title V permit.

To ensure compliance with the emission limits calculated in accordance with 9 VAC 5 Chapter 40, Article 4 and Article 8, the source will be required to maintain records of the type and amount of fuel combusted in the fuel burning units and the amount of material processed in the processing units. Virginia regulations require the use of existing source standards where no new source standards exist for fuel burning equipment and general process operations. Therefore, all units are subject to the existing source emission standards of 9 VAC 5 Chapter 40. Each unit has been given an opacity standard corresponding to either the existing source standard in Chapter 40 or the new source standard in Chapter 50 depending on the date of construction of the unit. Allowable emissions of PM and SO₂ were calculated in accordance with the following equations from 9 VAC 5 Chapter 40, Article 4 - General Process Operations and Article 8 - Fuel Burning Equipment, of the Virginia Regulations for the Control and Abatement of Air Pollution:

Fuel Burning Equipment - Chapter 40, Article 8 of Virginia Regulations

Allowable PM emissions, lb/mmBTU = $1.0906 \times (\text{heat input rating})^{-0.2594}$

Allowable SO₂ emissions, lb/hr = $2.64 \times (\text{heat input rating})$ or 2.64 lbs/mmBTU

The source demonstrated compliance with the calculated allowable emission limitations for PM and SO₂ from fuel burning equipment through the use of AP-42 emission factors. The factors were taken from AP-42 Sections 1.3 and 1.4. The maximum calculated SO₂ emissions are based on the assumption that the boilers burn No. 6 fuel oil 100% of the time. This is extremely conservative since the primary fuel for the boilers is natural gas with No. 6 fuel oil used as a backup. Maximum heating value of No. 6 fuel oil is assumed to be 149,600 Btu/gallon. The maximum PM and SO₂ emissions for each combustion unit (Unit Ref. Nos. 1-5) were calculated using the following equations:

Maximum PM emissions (No.6 oil), lb/mmBTU = $10 \text{ lb}/1000 \text{ gal (AP-42)} \times 6.7 \text{ gal/mmBTU}$;

Maximum PM emissions (natural gas), lb/mmBTU = $7.6 \text{ lb}/10^6 \text{ ft}^3 \text{ (AP-42)} \times \text{ft}^3/1000 \text{ Btu} \times 10^6 \text{ Btu/mmBTU}$.

Maximum SO₂ hourly emissions (No.6 fuel oil), lb/hr = $(157 \times \%S) \text{ lb}/1000 \text{ gal. (AP-42)} \times \text{heat input rating in mmBTU/hr} \times 1000 \text{ gal}/149.6 \text{ mmBTU}$, where $\%S=2.4$;

Maximum SO₂ hourly emissions (natural gas), lb/hr = $0.6 \text{ lb}/10^6 \text{ ft}^3 \text{ (AP-42)} \times \text{ft}^3/1000 \text{ Btu} \times 10^6 \text{ Btu/mmBTU} \times \text{heat input rating in mmBTU/hr}$.

Boilers 1, 2, and 3 (each)

Allowable PM Emissions, lb/mmBTU = 0.330

Allowable SO₂ Emissions, lb/hr = 264.0

Maximum PM Emissions, lb/mmBTU = 0.067

Maximum SO₂ Emissions, lb/hr = 251.9

Boiler 4

Allowable PM Emissions, lb/mmBTU = 0.332

Allowable SO₂ Emissions, lb/hr = 258.7

Maximum PM Emissions, lb/mmBTU = 0.067
Maximum SO₂ Emissions, lb/hr = 246.8

Boiler 5

Boiler 5 emission limits from the 4/2/84 PSD permit are more stringent than calculated PM and SO₂ emission limits Chapter 40. The following calculation of potential emissions was prepared to demonstrate compliance with the emission limits established in Condition 6 of the Title V permit.

The calculation also assumes a heating value for No. 6 fuel oil of 149,600 Btu/gallon but a 1.0% sulfur content. The sulfur content limitation is an applicable requirement from the 4/2/84 PSD permit.

Allowable PM Emissions, lbs/hour = 15.5, from 4/2/84 PSD permit.

Allowable SO₂ Emissions, lbs/hour = 105.6, from 4/2/84 PSD permit.

Potential PM Emissions, lb/mmBTU = 0.067, or 6.6 lbs/hour.

Potential SO₂ Emissions, lbs/hour = 102.8

Dryers 41, 42, 43, and 44 - The permittee calculated and submitted to DEQ maximum hourly emission rates from the dryers to demonstrate compliance with emission limits established in Conditions 7 and 8 of the Title V permit. The dryers are subject to both the SO₂ and PM emission limitations for fuel burning equipment in Article 8, Chapter 40 of the Virginia Regulations and to the PM limitations for process units in Article 4, Chapter 40. The Process PM limitations will be discussed in the next paragraph - Process Equipment. Allowable and potential PM and SO₂ emissions from fuel burning for the dryers are outlined below. Potential SO₂ emissions calculations assume a maximum sulfur content of 2.4%, No. 6 fuel oil heating value of 149,600 Btu/gallon, and emission factors from AP-42, Table 1.3-1. Potential SO₂ emissions are considered highly conservative because, like the boilers, the primary fuel for the dryers is natural gas with No. 6 fuel oil used as a backup. Potential SO₂ emissions have been calculated assuming 100% No. 6 fuel oil usage. Allowable SO₂ emissions are based on Article 8, Chapter 40 of the Virginia Regulations:

Allowable Fuel Burning PM Emissions, Units 41 and 42 = 0.437 lbs/mmBtu, each;

Allowable Fuel Burning PM Emissions, Units 43 and 44 = 0.419 lbs/mmBtu, each;

Allowable SO₂ Emissions, Units 41, 42, 43, and 44 = 2.64 lbs/mmBtu, each;

Potential Fuel Burning PM Emissions, Units 41 and 42 (No. 6 oil) = 0.067 lbs/mmBtu, each;

Potential Fuel Burning PM Emissions, Units 43 and 44 (No. 6 oil) = 0.067 lbs/mmBtu, each;

Potential SO₂ Emissions (No.6 fuel oil), lb/hr = (157 x %S) lb/1000 gal. (AP-42) x heat input rating in mmBTU/hr x 1000 gal/149.6 mmBTU, where %S=2.4;

Potential SO₂ Emissions, Units 41 and 42 = 85.6 lbs/hr each or 2.52 lb/mmBtu each;

Potential SO₂ Emissions, Units 43 and 44 = 100.75 lbs/hr each or 2.52 lb/mmBtu each.

Process Equipment - Article 4, Chapter of 40 of Virginia Regulations

Allowable PM emissions are based on the following equation in Chapter 40 of the Virginia Regulations (9 VAC 5-40-260.C.):

$E = 4.10 \times P^{0.67}$, where E is the emission rate in lbs/hour and P is the process weight rate in tons/hr.

Dryers 41, 42, 43, and 44

Dryers 41 and 42 Allowable Process PM Emissions = 23.6 lbs/hour, each

Dryers 43 and 44 Allowable Process PM Emissions = 35.2 lbs/hour, each

The dryer potential emissions calculations utilized emission factors from AP-42 Table 9.12.1-1, Malt Beverages. The PM emission factor of 0.11 lbs per ton was used for the dryers and accounts for the use of wet scrubbers for PM control.

Dryers 41 and 42 Potential PM Emissions, lbs/hr = 13.6 tons/hr x 0.11 lbs/ton = 1.5 lbs/hr, each.
Dryers 43 and 44 Potential PM Emissions, lbs/hr = 24.7 tons/hr x 0.11 lbs/ton = 2.7 lbs/hr, each.

A-Side and B-Side Grain Unloading and Transfer - Units 21, 22, 25, 26, and 27

Allowable PM emissions are based on 9 VAC 5-40-260. Potential PM emissions are based on emission factors from AP-42, Table 9.9.1-1, Grain Elevators and Processes, maximum hourly throughputs for each unit, and assume 99.7% control efficiency from the baghouses.

Allowable PM Emissions, Unit 21 = 44.7 lbs/hr
Allowable PM Emissions, Unit 22 = 21.7 lbs/hr
Allowable PM Emissions, Unit 25 = 63.7 lbs/hr
Allowable PM Emissions, Units 26 and 27 = 19.2 lbs/hr, each

Potential PM Emissions, Unit 21 = 35 tons/hr x 0.0078 lb/ton x (1-0.997) = 0.00082 lbs/hr;
Potential PM Emissions, Unit 22 = 12 tons/hr x 0.034 lb/ton x (1-0.997) = 0.00122 lbs/hr;
Potential PM Emissions, Unit 25 = 60 tons/hr x 0.0078 lb/ton x (1-0.997) = 0.0014 lbs/hr;
Potential PM Emissions, Units 26 and 27 = 10 tons/hr x 0.034 lb/ton x (1-0.997) = 0.00102 lbs/hr, each.

Cooling Collectors, Dried Grain Storage and Loadout - Units 47, 48, 49, 50, 52, 53, and 55

Allowable PM emissions are based on 9 VAC 5-40-260. Potential PM emissions are based on emission factors from AP-42, Table 9.9.1-1, maximum hourly throughputs for each unit, and assume 99.7% control efficiency for the baghouses.

Allowable PM Emissions, Unit 47 = 9.5 lbs/hr
Allowable PM Emissions, Unit 48 = 17.6 lbs/hr
Allowable PM Emissions, Unit 49 = 25.2 lbs/hr
Allowable PM Emissions, Unit 50 = 30.5 lbs/hr
Allowable PM Emissions, Unit 52 = 15.8 lbs/hr
Allowable PM Emissions, Unit 53 = 13.8 lbs/hr
Allowable PM Emissions, Unit 55 = 25.2 lbs/hr

Potential PM Emissions:

Unit 47 = 3.5 tons/hr x 0.034 lb/ton x (1-0.997) = 0.00036 lbs/hr;
Unit 48 = 8.8 tons/hr x 0.034 lb/ton x (1-0.997) = 0.0009 lbs/hr;
Unit 49 = 15 tons/hr x 0.034 lb/ton x (1-0.997) = 0.00153 lbs/hr;
Unit 50 = 20 tons/hr x 0.029 lb/ton x (1-0.997) = 0.00174 lbs/hr;
Unit 52 = 7.5 tons/hr x 0.034 lb/ton x (1-0.997) = 0.00077 lbs/hr;
Unit 53 = 6 tons/hr x 0.034 lb/ton x (1-0.997) = 0.00061 lbs/hr;
Unit 55 = 15 tons/hr x 0.034 lb/ton x (1-0.997) = 0.00153 lbs/hr.

Diatomaceous Earth Handling System - Units 71, 72, and 73

Allowable PM emissions are based on 9 VAC 5-40-260. Potential PM emissions are based on emission factors from AP-42, Table 11.6-4, Portland Cement and the maximum hourly throughput for each unit. The AP-42 factor accounts for the use of fabric filters for diatomaceous earth handling.

Allowable PM Emissions, Units 71 and 72 = 19.2 lbs/hr, each;
Allowable PM Emissions, Unit 73 = 12.1 lbs/hr.

Potential PM Emissions:

Units 71 and 72 = 10 tons/hr x 2.9E-05 lb/ton = 0.00029 lbs/hr, each;
Unit 73 = 5 tons/hr x 2.9E-05 lb/ton = 0.000145 lbs/hr.

The source shall demonstrate continuing compliance with the established PM and SO₂ emission limitations by utilizing the above AP-42 calculations or other suitable emission factors as approved by DEQ and maintaining records of monthly fuel and process throughputs, fuel oil percent sulfur contents, and proper maintenance of control devices.

All sources have been given an opacity requirement with a corresponding monthly monitoring requirement in the Title V permit. Periodic monitoring for scrubber liquid level in Specific Condition 14 of the Title V permit is deemed sufficient to ensure compliance with particulate emission limitations from the dryers. Recordkeeping for throughputs, opacity monitoring, and scrubber liquid level monitoring is specified in the permit.

The above calculations demonstrate compliance with short-term emission limitations as specified in Articles 4 and 8 of Chapter 40 of the Virginia Regulations for the Control and Abatement of Air Pollution on a worst case basis. The proposed periodic monitoring scheme is deemed sufficient to ensure compliance with all limitations established in the Title V permit. Therefore, no additional recordkeeping is required for these units.

The facility has submitted a Compliance Assurance Monitoring (CAM) Applicability analysis with the Title V renewal application. The CAM Applicability analysis demonstrates that CAM does not apply to the facility at this time.

Recordkeeping

The permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include operations log entries of monthly periodic visual evaluations for the combustion sources; all preventative maintenance records for the scrubber; records of AP-42 calculations or other suitable emission factors as approved by DEQ demonstrating compliance with the established PM and SO₂ emission limitations; records of monthly fuel and process throughputs, fuel oil percent sulfur contents, and maintenance of control devices; and records of scrubber liquid level monitoring.

Testing

The permit does not require source tests. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

The facility is required to submit quarterly fuel quality reports for residual oil shipments received and an annual facility-wide emissions statement. The permit contains general requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

Streamlined Requirements

No streamlined conditions have been included in this permit action.

GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

Comments on General Conditions

B. Permit Expiration

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.1-20.01:2 and §10.1-1185 of the *Code of Virginia*, and the "Department of Environmental Quality Agency Policy Statement NO. 3-2001". This general condition cites the Article that follows:

Article 1 (9 VAC 5-80-50 et seq.), Part II of 9 VAC 5 Chapter 80. Federal Operating Permits for Stationary Sources.

This general condition cites the sections that follow:

9 VAC 5-80-80. Application

9 VAC 5-80-140. Permit Shield

9 VAC 5-80-150. Action on Permit Applications

F. Failure/Malfunction Reporting

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

J. Permit Modification

This general condition cites the sections that follow:

9 VAC 5-80-50. Applicability, Federal Operating Permit For Stationary Sources

9 VAC 5-80-190. Changes to Permits.

9 VAC 5-80-260. Enforcement.

9 VAC 5-80-1100. Applicability, Permits For New and Modified Stationary Sources

9 VAC 5-80-1790. Applicability, Permits For Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas

9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas

U. Malfunction as an Affirmative Defense

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition U and General Condition F. For further explanation see the comments on general condition F.

This general condition cites the sections that follow:

9 VAC 5-20-180. Facility and Control Equipment Maintenance or Malfunction

9 VAC 5-80-110. Permit Content

Y. Asbestos Requirements

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

This general condition contains a citation from the Code of Federal Regulations that follow:

40 CFR 61.145, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to demolition and renovation.

40 CFR 61.148, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to insulating materials.

40 CFR 61.150, NESHAP Subpart M. National Emissions Standards for Asbestos as it applies to waste disposal.

This general condition cites the regulatory sections that follow:

9 VAC 5-60-70. Designated Emissions Standards

9 VAC 5-80-110. Permit Content

STATE ONLY APPLICABLE REQUIREMENTS

The following Virginia Administrative Codes have specific requirements only enforceable by the State and have been identified as applicable by the applicant:

Odor - 9 VAC 5 Chapter 40, Article 2 and 9 VAC 5 Chapter 50, Article 2.

State toxics rule - 9 VAC 5 Chapter 60, Article 4 and 9 VAC 5 Chapter 60, Article 5.

FUTURE APPLICABLE REQUIREMENTS

None.

INAPPLICABLE REQUIREMENTS

The startup, shut down, and malfunction opacity exclusion listed in 9 VAC 5-40-20 A 3 cannot be included in any Title V permit. This portion of the regulation is not part of the federally approved state implementation plan. The opacity standard applies to existing sources at all times including startup, shutdown, and malfunction. Opacity exceedances during malfunction can be affirmatively defended provided all requirements of the affirmative defense section of this permit are met. Opacity exceedances during startup and shut down will be reviewed with enforcement discretion using the requirements of 9 VAC 5-40-20 E, which state that "At all times, including periods of startup, shutdown, soot blowing and malfunction, owners shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with air pollution control practices for minimizing emissions."

COMPLIANCE PLAN

None required.

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
11	No. 6 Fuel Oil Storage Tank	9 VAC 5-80-720 B	VOC	84,000 gallons

12	No. 6 Fuel Oil Storage Tank	9 VAC 5-80-720 B	VOC	84,000 gallons
13	No. 6 Fuel Oil Storage Tank	9 VAC 5-80-720 B	VOC	400,000 gallons
14	No. 6 Fuel Oil Storage Tank	9 VAC 5-80-720 B	VOC	1,000,000 gallons
24	Vacuum system No. 1 for Received Grain Building	9 VAC 5-80-720 B	PM-10	100 lbs/hr of grain dust
30	Vacuum system No. 2 for Received Grain Building	9 VAC 5-80-720 B	PM-10	100 lbs/hr of grain dust
56	Vacuum system for Dried Grains Building	9 VAC 5-80-720 B	PM-10	100 lbs/hr of grain dust
62	Distillation Feed Tank for Waste Beer and Spent Yeast Streams	9 VAC 5-80-720 B	VOC	25,000 gallons
63A	Distillation Day Tank for Recovered Alcohol	9 VAC 5-80-720 B	VOC	2,000 gallons
63B	Distillation Day Tank for Recovered Alcohol	9 VAC 5-80-720 B	VOC	2,000 gallons
64	Bonded Alcohol Distillation Tank	9 VAC 5-80-720 B	VOC	25,000 gallons
65	Distilled Alcohol Loadout	9 VAC 5-80-720 B	VOC	3,663 tons/year

66	Evaporator Feed Tank for Distillation Bottoms and Brewhouse waste streams	9 VAC 5-80-720 B	VOC	30,000 gallons
67	6-Effect Evaporator to Remove Water in Production of Beer-Condensed Solids	9 VAC 5-80-720 B	VOC	201 million gallons/year
82	Chlorine for Process Cooling Water Treatment	9 VAC 5-80-720 B	Chlorine	50 tons/year processed
83A	Lubricating Oil Storage Containers	9 VAC 5-80-720 A	VOC	Less than 1,000 gallons each
83B	Safety Kleen Parts Washing Units	9 VAC 5-80-720 B	VOC	30 gallon units
86	Waste Beer Collecting Sump	9 VAC 5-80-720 B	VOC	10,000 gallons
87	Waste Beer Storage Tank	9 VAC 5-80-720 B	VOC	25,0000 gallons
88	Waste Water Influent Wells/Screens	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
91	Rice Cookers for Brewing Process	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production

92	Mash Cookers for Brewing Process	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
93	Wort Straining for Brewing Process	9 VAC 5-80-720 B	VOC, Acetaldehyde	11 million barrels/year beer production
94	Spent Grain Handling Tanks for Brewing Process	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
95	Brew Holding Tanks for Brewing Process	9 VAC 5-80-720 B	VOC, Acetaldehyde	11 million barrels/year beer production
96	Brewkettles for Brewing Process	9 VAC 5-80-720 B	VOC, PM-10, Acetaldehyde	11 million barrels/year beer production
97	Hops Strainers for Brewing Process	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
98A	Wort Receivers for Brewing Process	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
98B	Trub Receiver for Brewing Process	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
99	Wort Aerators and Coolers for Brewing Process	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
100	Cold Wort Settling Tanks for Brewing Process	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production

111A	Culture Fermenters for Yeast Production	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
111D	Alpha Tank Drop Receivers for Primary Aging	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
112	Activated Carbon Regeneration Systems for Purifying CO ₂	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
113	Wood Chip Cookers for Aging Process	9 VAC 5-80-720 B	None	11 million barrels/year beer production
114B	Krausen Holding Tanks for Secondary Aging	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
116	Storage of Spent Wood Chips from Aging Process	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
117	Waste Alpha Yeast Storage Tanks for Aging Process	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
118	Waste Chip Yeast Storage Tank for Aging Process	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production

119	Waste Chip Yeast Storage Tanks for Aging Process	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
120	Schoene Sludge Storage Tank for Finishing Process	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
131A	Schoene Decant Tanks for Finishing	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
131B	Schoene Receivers for Finishing	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
132	Diatomaceous Earth (DE) Filtering System for Finishing Operations	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
133	Spent DE Slurry Tank	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
134	Spent DE Storage Dumpster	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
135	Alternate Chill Proofing System for Beer Finishing	9 VAC 5-80-720 B	PM-10	10,000 tons/year silica
141C	Keg Filling in Packaging Operations	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
142A/B	Can and Bottle Pasteurizers for Packaging Operation	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production

143	Packaging Line Lubrication	9 VAC 5-80-720 B	VOC	900,000 lbs/year lubricant
144	Product Marking Using Ink Coders	9 VAC 5-80-720 B	VOC	9,000 lbs/year ink solvent
145	Use of Adhesives in Bottle and Keg Label Application	9 VAC 5-80-720 B	VOC	1 million lbs/year of <0.2 weight % VOC adhesive
146	Use of Hot-melt Glues in Carton Assembly	9 VAC 5-80-720 B	VOC	600,000 lbs/year glue
147	Washing of Returnable Bottles	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
148	Washing Returnable Beer Kegs	9 VAC 5-80-720 B	VOC	11 million barrels/year beer production
149	Emergency Diesel Engine Water Pump	9 VAC 5-80-720 C	VOC, NO _x , PM-10, SO ₂ , CO	380 horsepower
150A	Bulk Gypsum Silo	9 VAC 5-80-720 C	PM-10	20 tons/hour
150B	Bulk Gypsum Scale Hoppers	9 VAC 5-80-720 B	PM-10	1.1 tons/hour
160	Residuals Dust Collector System	9 VAC 5-80-720 B	PM-10	876 tons/year dust
170	Cooling Towers	9 VAC 5-80-720 B	PM-10	31.4 million gallons
180	Auto Lid sleeves	9 VAC 5-80-720 B	PM-10	11 million barrels/year beer production
190	Laser Coders	9 VAC 5-80-720 B	PM-10	11 million barrels/year beer production
200	Emergency Generator	9 VAC 5-80-720 B	VOC, NO _x , PM-10, SO ₂ , CO	200 kW

210	Bulk Glass Strap Remover/ Shredder	9 VAC 5-80-720 B	PM-10	10 tons
220	Box Making	9 VAC 5-80-720 B	PM-10	20 tons
230	Silica Gel Unloading	9 VAC 5-80-720 B	PM-10	10 tons

¹The citation criteria for insignificant activities are as follows:

9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application

9 VAC 5-80-720 B - Insignificant due to emission levels

9 VAC 5-80-720 C - Insignificant due to size or production rate

CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

PUBLIC PARTICIPATION

The proposed permit will be placed on public notice in the Norfolk *Virginian-Pilot* from October XX, 2005 to November XX, 2005.